

**TRANSLATION**      **PATENT COOPERATION TREATY**  
**PCT**

**INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY**  
(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

|                                                                                                   |                                                                 |                                                     |
|---------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|-----------------------------------------------------|
| Applicant's or agent's file reference<br><b>51.495 WO do</b>                                      | FOR FURTHER ACTION                                              | See Form PCT/IPEA/416                               |
| International application No.<br><b>PCT/EP2004/000559</b>                                         | International filing date (day/month/year)<br><b>23.01.2004</b> | Priority date (day/month/year)<br><b>24.01.2003</b> |
| International Patent Classification (IPC) or national classification and IPC<br><b>H01J37/317</b> |                                                                 |                                                     |
| Applicant<br><b>NAWOTEC GMBH</b>                                                                  |                                                                 |                                                     |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                     |                                                                                                                                                                        |                  |                            |                          |                   |                 |                          |                    |                                                                                                         |                          |                   |                                   |                                     |                  |                                                                                                                                                                        |                          |                   |                                |                          |                    |                                                         |                          |                     |                                                              |
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| <p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of <u>6</u> sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input checked="" type="checkbox"/> (<i>sent to the applicant and to the International Bureau</i>) a total of <u>13</u> sheets, as follows:</p> <p><input checked="" type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (<i>sent to the International Bureau only</i>) a total of (indicate type and number of electronic carrier(s)) _____, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p> |                     |                                                                                                                                                                        |                  |                            |                          |                   |                 |                          |                    |                                                                                                         |                          |                   |                                   |                                     |                  |                                                                                                                                                                        |                          |                   |                                |                          |                    |                                                         |                          |                     |                                                              |
| <p>4. This report contains indications relating to the following items:</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;"><input checked="" type="checkbox"/></td> <td style="width: 15%;"><b>Box No. I</b></td> <td style="width: 70%;"><b>Basis of the report</b></td> </tr> <tr> <td><input type="checkbox"/></td> <td><b>Box No. II</b></td> <td><b>Priority</b></td> </tr> <tr> <td><input type="checkbox"/></td> <td><b>Box No. III</b></td> <td><b>Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</b></td> </tr> <tr> <td><input type="checkbox"/></td> <td><b>Box No. IV</b></td> <td><b>Lack of unity of invention</b></td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td><b>Box No. V</b></td> <td><b>Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</b></td> </tr> <tr> <td><input type="checkbox"/></td> <td><b>Box No. VI</b></td> <td><b>Certain documents cited</b></td> </tr> <tr> <td><input type="checkbox"/></td> <td><b>Box No. VII</b></td> <td><b>Certain defects in the international application</b></td> </tr> <tr> <td><input type="checkbox"/></td> <td><b>Box No. VIII</b></td> <td><b>Certain observations on the international application</b></td> </tr> </table>                                                                        |                     | <input checked="" type="checkbox"/>                                                                                                                                    | <b>Box No. I</b> | <b>Basis of the report</b> | <input type="checkbox"/> | <b>Box No. II</b> | <b>Priority</b> | <input type="checkbox"/> | <b>Box No. III</b> | <b>Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</b> | <input type="checkbox"/> | <b>Box No. IV</b> | <b>Lack of unity of invention</b> | <input checked="" type="checkbox"/> | <b>Box No. V</b> | <b>Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</b> | <input type="checkbox"/> | <b>Box No. VI</b> | <b>Certain documents cited</b> | <input type="checkbox"/> | <b>Box No. VII</b> | <b>Certain defects in the international application</b> | <input type="checkbox"/> | <b>Box No. VIII</b> | <b>Certain observations on the international application</b> |
| <input checked="" type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | <b>Box No. I</b>    | <b>Basis of the report</b>                                                                                                                                             |                  |                            |                          |                   |                 |                          |                    |                                                                                                         |                          |                   |                                   |                                     |                  |                                                                                                                                                                        |                          |                   |                                |                          |                    |                                                         |                          |                     |                                                              |
| <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <b>Box No. II</b>   | <b>Priority</b>                                                                                                                                                        |                  |                            |                          |                   |                 |                          |                    |                                                                                                         |                          |                   |                                   |                                     |                  |                                                                                                                                                                        |                          |                   |                                |                          |                    |                                                         |                          |                     |                                                              |
| <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <b>Box No. III</b>  | <b>Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</b>                                                                |                  |                            |                          |                   |                 |                          |                    |                                                                                                         |                          |                   |                                   |                                     |                  |                                                                                                                                                                        |                          |                   |                                |                          |                    |                                                         |                          |                     |                                                              |
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|                                         |                                   |
|-----------------------------------------|-----------------------------------|
| Date of submission of the demand        | Date of completion of this report |
| Name and mailing address of the IPEA/EP | Authorized officer                |
| Facsimile No.                           | Telephone No.                     |

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/EP2004/000559

## Box No. I Basis of the report

1. With regard to the language, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

This report is based on translations from the original language into the following language \_\_\_\_\_ which is the language of a translation furnished for the purposes of:

international search (Rule 12.3 and 23.1(b))  
 publication of the international application (Rule 12.4)  
 international preliminary examination (Rule 55.2 and/or 55.3)

2. With regard to the elements of the international application, this report is based on (*replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report*):

the international application as originally filed/furnished  
 the description:

pages 1, 2, 5-33 as originally filed/furnished  
 pages\* 3, 4, 4a received by this Authority on 24.08.2005 with letter of 18.07.2005  
 pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_

the claims:

nos. \_\_\_\_\_ as originally filed/furnished  
 nos.\* \_\_\_\_\_ as amended (together with any statement) under Article 19 24.08.2005 with letter of 18.07.2005  
 nos.\* 1-38 received by this Authority on of 18.07.2005  
 nos.\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_

the drawings:

sheets 1/3-3/3 as originally filed/furnished  
 sheets\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_  
 sheets\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_

a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.

3.  The amendments have resulted in the cancellation of:

the description, pages \_\_\_\_\_  
 the claims, nos. \_\_\_\_\_  
 the drawings, sheets/figs \_\_\_\_\_  
 the sequence listing (*specify*): \_\_\_\_\_  
 any table(s) related to sequence listing (*specify*): \_\_\_\_\_

4.  This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

the description, pages \_\_\_\_\_  
 the claims, nos. \_\_\_\_\_  
 the drawings, sheets/figs \_\_\_\_\_  
 the sequence listing (*specify*): \_\_\_\_\_  
 any table(s) related to sequence listing (*specify*): \_\_\_\_\_

\* If item 4 applies, some or all of those sheets may be marked "superseded."

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| Box No. V | Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement |
|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|

## 1. Statement

|                               |        |      |     |
|-------------------------------|--------|------|-----|
| Novelty (N)                   | Claims | 1-38 | YES |
|                               | Claims |      | NO  |
| Inventive step (IS)           | Claims | 1-38 | YES |
|                               | Claims |      | NO  |
| Industrial applicability (IA) | Claims | 1-38 | YES |
|                               | Claims |      | NO  |

## 2. Citations and explanations (Rule 70.7)

This report makes reference to the following document:

D1: DE 196 09 234 A1 (DEUTSCHE TELEKOM AG1 53113 BONN,  
DE) 11 September 1997 (1997-09-11)

## 1. NOVELTY

D1 is considered to be the prior art closest to the subject matter of claim 1. D1 discloses (the references in parentheses are to D1):

method of producing corpuscular radiation systems (tube systems) in which at least a first corpuscular radiation system is produced on a first substrate (**D1: column 3, lines 64-66**) by means of corpuscular radiation-induced deposition (**D1: column 4, lines 19-28**).

Thus the subject matter of claim 1 differs from the known method of producing corpuscular radiation systems in that

a) at least a second corpuscular radiation

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Box No. V

**Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

system is produced on at least a second substrate from the at least one first corpuscular radiation system by means of computer-controlled, corpuscular radiation-induced deposition;

b) and then at least one additional first corpuscular radiation system is produced on the first substrate from the at least one second corpuscular radiation system by means of computer-controlled, corpuscular radiation-induced deposition.

The subject matter of claim 1 is therefore novel (PCT Article 33(2)).

**2. INVENTIVE STEP**

The aforementioned distinguishing features have the technical effect of reducing the production time for a large number of miniaturized corpuscular radiation systems and that of ensuring effective utilization of the substrates.

The use of corpuscular radiation lithography for producing parts of the tube systems (corpuscular radiation systems) is known in the field (see D1: abstract). In this process, corpuscular radiation structures are duplicated on a plurality of substrates...

The solution proposed in claim 1 of the present application is successive reproduction of

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Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

corpuscular radiation systems on two different substrates. In this process, a first generation of corpuscular radiation systems, which were produced on a first substrate by means of computer-controlled deposition, is used for the production of a second generation of corpuscular radiation systems on a second substrate. The second generation of corpuscular radiation systems on the second substrate is then used to produce an additional generation of corpuscular radiation systems on the first substrate. This solution leads to a reduction in production time because a plurality of corpuscular radiation systems can be produced simultaneously. Furthermore, this solution also makes it possible for the substrates to be better utilised because a number of generations of corpuscular radiation systems are produced on the same substrate.

None of the available prior art documents discloses or suggests successive reproduction of corpuscular radiation systems on two different substrates. A person skilled in the art attempting to solve the aforementioned problem would not be able to find anything in the prior art that might prompt this person to modify the method of producing tube systems in D1 in such a way as to arrive at the subject matter of claim 1, without thereby being inventive.

The subject matter of claim 1 therefore involves an inventive step (PCT Article 33(3)).

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|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|
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**3. ADDITIONAL INDEPENDENT CLAIMS**

The same argument with regard to novelty and inventive step applies *mutatis mutandis* to the subject matter of independent claim 19, which is therefore also novel and inventive.

**4. DEPENDENT CLAIMS**

Claims 2 to 18 are dependent on claim 1 and claims 20 to 38 are dependent on claim 19, and these claims therefore also meet the PCT requirements for novelty and inventive step.